

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Music-induced emotion recognition based on information fusion of forehead biopotentials and acoustic content in healthy women

#### Protocol summary

##### Study aim

Evaluation of simultaneous use of biological signals and music acoustic content in music-induced emotion recognition

##### Design

Quasi-experimental clinical trial, Before-after design, One intervention group with 9 healthy subjects

##### Settings and conduct

This study focuses on recognizing music-induced emotions using biological signals and music acoustic content, at Tarbiat Modares University of Iran. The procedure: 1. Gathering validated emotional music pieces to induce basic emotions, 2. Biological signal acquisition from the participants before and after emotional interventions, 3. Biosignal analysis and emotion recognition system design. In this step, we will focus on statistical analysis and classification methods based on information fusion of biosignals and acoustic content of played music. The recorded forehead biopotentials contain information about EEG, EOG and facial EMG signals, which will be separated at the signal processing step.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria: Female, aged between 23 to 32 years, healthy, have normal or corrected-to-normal vision, university student. Exclusion criteria: Have history of neurological diseases, medication use, fasting.

##### Intervention groups

Intervention group: 9 healthy females. In one session: 1. Playing a piece of neutral music (the sound of waterfall) to induce neutral feelings, 2. Playing emotional music pieces to induce two basic emotions (Happiness, Sadness), while recording forehead biopotentials. The device FlexComp Ininiti (Thought Technology Ltd, Montreal, QC), along with the golden electrodes, will be used to record forehead biopotentials.

##### Main outcome variables

Forehead neural activity

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20200212046473N2**

Registration date: **2020-06-05, 1399/03/16**

Registration timing: **retrospective**

Last update: **2020-06-05, 1399/03/16**

Update count: **0**

##### Registration date

2020-06-05, 1399/03/16

##### Registrant information

##### Name

Zeynab Khodakarami

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 5121 5080

##### Email address

z.khodakarami@modares.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2017-05-22, 1396/03/01

##### Expected recruitment end date

2017-06-10, 1396/03/20

##### Actual recruitment start date

2017-05-22, 1396/03/01

##### Actual recruitment end date

2017-06-10, 1396/03/20

##### Trial completion date

2017-06-10, 1396/03/20

##### Scientific title

Music-induced emotion recognition based on information fusion of forehead biopotentials and acoustic content in healthy women

#### Public title

Emotion recognition using forehead biopotentials and acoustic content

#### Purpose

Supportive

#### Inclusion/Exclusion criteria

##### Inclusion criteria:

Aged between 23 to 32 years Healthy Have normal or corrected-to-normal vision University student

##### Exclusion criteria:

Have history of neurological diseases (e.g. migraine or epilepsy) Medication use Fasting

#### Age

From **23 years** old to **32 years** old

#### Gender

Female

#### Phase

N/A

#### Groups that have been masked

*No information*

#### Sample size

Target sample size: **9**

Actual sample size reached: **9**

#### Randomization (investigator's opinion)

N/A

#### Randomization description

#### Blinding (investigator's opinion)

Not blinded

#### Blinding description

#### Placebo

Not used

#### Assignment

Single

#### Other design features

### Secondary Ids

empty

### Ethics committees

#### 1

##### Ethics committee

###### Name of ethics committee

Research Ethics Committee of Tarbiat Modares University

###### Street address

Tarbiat Modares University, Nasr Bridge, Jalal-Ale-Ahmad

###### City

Tehran

###### Province

Tehran

###### Postal code

14115-111

##### Approval date

2017-01-18, 1395/10/29

#### Ethics committee reference number

IR.TMU.REC.1395.477

### Health conditions studied

#### 1

##### Description of health condition studied

Healthy individuals

##### ICD-10 code

##### ICD-10 code description

#### 2

##### Description of health condition studied

Emotional states

##### ICD-10 code

##### ICD-10 code description

#### 3

##### Description of health condition studied

Forehead biopotentials

##### ICD-10 code

##### ICD-10 code description

#### 4

##### Description of health condition studied

Acoustic content

##### ICD-10 code

##### ICD-10 code description

### Primary outcomes

#### 1

##### Description

Forehead neural activity

##### Timepoint

While playing neutral music pieces, While playing emotional music pieces

##### Method of measurement

Recording forehead bioelectric signals

### Secondary outcomes

empty

### Intervention groups

#### 1

##### Description

Intervention group: 9 healthy females. In one session: 1. Playing a piece of neutral music (the sound of waterfall) to induce neutral feelings, 2. Playing emotional music pieces to induce two basic emotions (Happiness, Sadness), while recording forehead biopotentials. The device FlexComp Ininiti (Thought Technology Ltd, Montreal, QC), along with the golden electrodes, will be used to record forehead biopotentials.

**Category**

Other

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Tarbiat Modares University

**Full name of responsible person**

Zeynab Khodakarami

**Street address**

Department of Medical Physics, Faculty of Medical Sciences, Tarbiat Modares University, Nasr Bridge, Jalal-Ale-Ahmad

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**Province**

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**Phone**

+98 21 8288 3821

**Email**

z.khodakarami@gmail.com

**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

Tarbiat Modares University

**Full name of responsible person**

Yaghoob Fathollahi

**Street address**

Vice Chancellor for Research and Technology, Tarbiat Modares University, Nasr Bridge, Jalal-Ale-Ahmad

**City**

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**Phone**

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res@modares.ac.ir

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Tarbiat Modares University

**Proportion provided by this source**

100

**Public or private sector**

Public

**Domestic or foreign origin**

Domestic

**Category of foreign source of funding**

empty

**Country of origin****Type of organization providing the funding**

Academic

**Person responsible for general inquiries****Contact****Name of organization / entity**

Modares Science and Technology Park

**Full name of responsible person**

Zeynab Khodakarami

**Position**

Researcher

**Latest degree**

Master

**Other areas of specialty/work**

Medical Engineering

**Street address**

No. 15, Heyat St., Eshraghi Alley, North Karegar Ave.

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z.khodakarami@gmail.com

**Person responsible for scientific inquiries****Contact****Name of organization / entity**

Tarbiat Modares University

**Full name of responsible person**

Mohammad Firoozabadi

**Position**

Professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Medical Engineering

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Modares Science and Technology Park

**Full name of responsible person**

Zeynab Khodakarami

**Position**

Researcher

**Latest degree**

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## Sharing plan

**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

**Study Protocol**

Yes - There is a plan to make this available

**Statistical Analysis Plan**

Yes - There is a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

Undecided - It is not yet known if there will be a plan to make this available

**Analytic Code**

Undecided - It is not yet known if there will be a plan to make this available

**Data Dictionary**

Undecided - It is not yet known if there will be a plan to make this available

**Title and more details about the data/document**

All participants' data, after anonymization, will be shared through local and international biosignal online databases. The study protocol, statistical analysis map and informed consent can also be shared.

**When the data will become available and for how long**

Data and documents will be available once the results are published for an unlimited period.

**To whom data/document is available**

University researchers

**Under which criteria data/document could be used**

Commitment to mention the source of data and the name of principal investigator for any use, commitment not to use for clinical purposes

**From where data/document is obtainable**

Correspondence with the representative of principal investigator, Zeynab Khodakarami, with email address: z.khodakarami@gmail.com

**What processes are involved for a request to access data/document**

Request review by the representative of principal investigator (2 weeks), sharing the application with the principal investigator (2 weeks), final statement by the representative of principal investigator

**Comments**